SAVE MONEY ON YOUR NEXT FUEL UNLOADING STATION?

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Many industrial, private, and governmental facilities use bulk fuel unloading stations to fill storage tanks for emergency generators or power and steam generation. During the design of a recent fuel unloading station we learned of a November 13, 2009 EPA – SPCC Amendment to the Federal Register that changes design practices for unloading stations. The Amendment clarifies the difference between fuel unloading stations and fuel unloading racks. Previous to this amendment, most unloading stations were designed as unloading racks.

The Amendment to 40 CFR Part 112.7 states that an unloading area where a pipe stand connects to a tank truck via a flexible hose, which is not equipped with an unloading arm, is not considered an unloading rack. As a result, fuel unloading stations are not required to contain a catastrophic failure of the single largest fuel compartment. Prior to the November EPA Amendment, standard practice was to design to the largest compartment rule, based on typical mobile refueler delivery volumes.

The new Amendment requires general secondary containment requirements to meet the ***most likely oil discharge*** from mobile containers, also referred to as a mobile refueler by the EPA. Consequently, the amount of fuel spillage will likely be negligible compared to the stormwater volume, when sizing new containment areas and oil/water separators.

According to the EPA's Website FAQ page regarding mobile refuelers in Part 112.7(c):

> A mobile refueler is a bulk storage container onboard a vehicle or being towed that is designed or used solely to store and transport fuel for transport into or from an aircraft, motor vehicle, locomotive, vessel, ground service equipment, or other oil storage container. Mobile refuelers may be found at the following non-transportation-related locations: industrial sites, airports, military bases, construction sites, chemical complexes, mining sites, seaport terminals, and tank truck home bases.

To verify our understanding of the appropriate sizing requirements for fuel unloading stations and oil/water separators, we contacted the EPA. On April 5, 2010, we spoke with Craig Matthiessen, in the Emergency Management Division. He referred us to his supervisor and author of the Amendment, Mark Howard. Mr. Howard agreed that the general secondary containment requirements in Part 112.7(c) should address the most likely discharge from a container and from oil transfers into or from the mobile refueler. This requirement would generally be related to spills at connection of a flexible hose, not catastrophic failures, like unloading racks require.

Since the EPA does not specifically have a design guideline on sizing stormwater drainage to an oil/water separator, stormwater design is based on the most stringent local ordinance, state stormwater regulations, or the American Petroleum Institute's guidelines, which states the following:

> Unless it can be shown that an alternative design is equivalent, removal facilities shall consist of an oil/water separator designed to American Petroleum Institute (API) specifications and operated in accordance with the following standards:
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> a. The separator shall be capable of treating 80 gallons per minute for each acre of land draining to it during the precipitation runoff period (e.g., a two-acre drainage area will require a separator designed to achieve 160 gpm).
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> b. The horizontal velocity through the separator shall not exceed three feet per minute except when rainfall produces a runoff exceeding 80 gallons per minute per acre of land drainage to the separator. When such runoff occurs, there will be no limit on the horizontal velocity.
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> c. The detention time of water flowing through the separator shall be at least 20 minutes.

For example, a drainage area to an oil/water separator of approximately 1,200 SF, or 0.03 acres, requires approximately 3 gpm (80 gpm x 0.03 acres). To retain the flow for 20 minutes, the oil/water separator had to be at least 60 gallons.

Lastly, the EPA recommended using a combination of curbing, berms, or ditches to capture only the rainfall and typical spills in the unloading and pump station area. New layouts should include a normally open valve on the drainage line close to the unloading station, to prevent a spill from exiting the containment area. The valve will normally remain open, thus allowing normal pollutant and rainfall routing through the oil water separator. As an operational practice, the valve is closed during fuel unloading operations.

We trust this design documentation is helpful, and saves substantial costs and real estate. We owe it to our clients to make them aware of this clarification for future fuel unloading station construction or rehabilitation to existing facilities. For instance, we reduced the size of an oil water separator from 5,000 gallons to 350 gallons on a new fuel unloading station. Ancillary costs savings included reduced excavation, shoring, stone bedding, etc.